

RE-1/RE-2/RE-3

Owner's Manual

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING

The Federal Communications Commission does not allow any modifications or changes to the unit EXCEPT as that specified by Nakamichi in this manual. Failure to comply with this government regulation could void your authority to operate the equipment.

**CAUTION**

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U. S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

This digital apparatus does not exceed the CLASS B Limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communication.

Please record the Serial Number in the space provided below and retain this record.

The Serial Number is located on the rear panel of the unit.

Model Number : RE-1 / RE-2 / RE-3

Serial Number : _____

Precautions

Before starting to use your receiver, please read this manual carefully. Keep the manual at hand for future reference.

When installing the unit, choose a well ventilated location which does not obstruct heat dissipation and provides firm support.

Avoid locations subject to direct sunlight or extreme temperatures, moisture, high humidity, or high levels of dust.

Cleaning the Receiver

Caring for the exterior panels of the unit should be limited to wiping with a soft cloth. If necessary, slightly moisten the cloth with a diluted neutral detergent. Avoid using any solvents or alcohol-based cleaners.

Always disconnect the power cord from the AC outlet if the unit is not to be used for a long time.

Never block the ventilation openings on the top of the unit.

Proper ventilation is essential to prevent internal heat buildup. Do not cover the unit with drapes or the like, and always leave sufficient clearance above the unit.

Controls and Functions**Front Panel****1. Power Button**

Press this button to turn the unit on. After a muting interval, the receiver will be ready for operation. As a precaution, you should always turn the volume control fully down before turning the unit on.

2. Power Indicator

This indicator shows the operational status of the unit.

- Indicator out : Power is off.
- Indicator lit : Unit is in standby condition.
- Indicator flashing : Power is on, but muting interval has not yet completed or protection circuits have activated.
- Indicator lit and volume control indicator lit : Power is on, and unit is in normal operating condition.

3. AM/FM Button

This button selects the tuner band.

4. Listen Monitor Selector

The desired program source for listening can be chosen with these buttons (independent of the Rec Out Selector setting on RE-1 and RE-2).

When the unit is in the standby mode, operating one of the selector buttons will activate the receiver and other equipment connected to the "Switched" AC outlets on the rear panel, and the selected source can be heard (direct operation).

- Tuner : AM/FM reception
- Video 1 : VCR playback (RE-1)
- Video 2 : VCR playback (RE-1)
- Video : VCR or cassette deck playback (RE-2/RE-3)
- Tape 1 : Cassette deck playback (RE-1)
- Tape 2/ VCR : Cassette deck playback (RE-1)
- Tape : Cassette deck playback (RE-2)
- Tape Monitor : Tape monitor (playback) (RE-3)
- CD : CD player playback
- Phono : Record player playback

5. Indicator Panel**6. Audio Mute Button (RE-1/RE-2)**

When this button is pressed, the Audio Mute indicator lights up and the listening level is reduced to approximately one tenth. To disengage the muting mode, press the button once more. Muting is also disengaged when the Volume ^ button on the remote control is pressed.

7. Volume Indicator**8. Volume Control**

As a precaution, you should turn the volume control fully down before turning the unit on and before changing program sources.

9. Phones Jack

low resistance, designed specially for audio applications. Using thin cable with high resistance may impair sound quality and prevent the receiver from delivering its full potential.

- The speaker cables for both channels should be approximately equal in length, as a marked difference can result in improper left/right balance.
- Pay close attention to the power handling capability of connected loudspeakers. If it is lower than the maximum rated output of this receiver and the receiver's power amplifier section is driven close to its full capacity, damage to the speakers may result.
- The high-current design of this receiver permits stable operation over a fairly wide range of speaker load impedances. However, if two pairs of speakers are driven in parallel, do not turn up the volume to excessive levels.

Speaker Impedance Selector Switch (North American Model)

Based on the impedance of the speakers used, set the Speaker Impedance Selector Switch as follows.

- a) When a pair of speakers with an impedance of 8 ohms or more is connected to the A or B terminals: Set to "8 ~ 16 Ω".
- b) When a pair of speakers with an impedance of less than 8 ohms is connected to the A or B terminals: Set to "4 ~ 6 Ω".
- c) When pairs of speakers with an impedance of 8 to 12 ohms are connected to both of the A and B terminals: Set to "A + B 8 ~ 12 Ω".
- d) When pairs of speakers with an impedance of 16 ohms or more are connected to both of the A and B terminals: Set to "A + B 16 Ω ~".

CAUTION

Turn off the Power switch before using the Speaker Impedance Selector switch.

Protection Circuits

To guard against possible damage to the receiver and connected equipment, this unit incorporates separate circuits for the left and right channel, which constantly monitor operating conditions. If the internal temperature exceeds a certain level, if excessive current is drawn (for example due to a short-circuit in the speaker leads), or if DC current has leaked into the output, a relay cuts off the output in both channels. In this condition, the power supply is not deactivated, i.e. the unit is not completely switched off, and the Power indicator blinks. When regular conditions are restored, the receiver automatically reverts to normal operation and the Power indicator is constantly lit again.

- The above mentioned cases may result from unsuitable connections, improper installation (restricted air flow prevents heat dissipation), or abnormal use (such as driving very low-impedance speakers at high levels for an extended period). If the protection circuits are activated frequently, first turn down the volume control, then switch off the power and check connections of all components as well as installation conditions. If these checks reveal no particular problem and the protection circuits are activated again after the receiver was switched on, contact an authorized service station.

FM Antenna Connection

Using a properly designed high-quality FM antenna is an essential prerequisite for good FM reception. Take the following factors into consideration when choosing the antenna.

1. Choose a dedicated FM antenna suitable for your location.

<Areas in close proximity to strong stations>

In urban areas, the presence of buildings or other reflective objects often leads to multipath interference, which may cause increased distortion and degrade signal quality. To prevent this, an antenna of relatively low gain but high directivity is desirable, such as for example a powered two-element phase array antenna. If multipath problems are particularly bad, an antenna with even higher directivity such as a 5 to 8 element Yagi type antenna may be required. Since this type of antenna has a high gain, a suitable attenuator should be used in areas of high signal strength, to prevent overloading of the tuner input.

- When using the supplied 300-ohm twin-lead folded dipole, set it up as follows. Connect the feeder cable of the dipole to the receiver and tune in to a desired station. Then extend the antenna and fix it on a wall or other location yielding the best reception. It should be noted, however, that the gain and directivity of the dipole antenna may not be sufficient for satisfactory stereo reception. In such cases, the dipole should be used only as a temporary measure.

<Fringe areas at a greater distance from broadcast stations>

A high-gain 5 to 8 element Yagi type outdoor antenna is required. Normally, the antenna should be installed as high as possible.

2. Set up the antenna properly.

To prevent noise interference, the antenna should be kept well away from roads, high-voltage power lines and other possible noise sources. Adjust the antenna height and orientation for optimum reception.

3. Use a good, short antenna cable.

The longer the antenna cable, the more signal will be lost before reaching the tuner input, and the possibility of noise interference increases. For optimum tuner performance, you should use a high-quality coaxial cable and keep the connection as short as possible.

AM Antenna Connection

Connect the cable of the supplied AM loop antenna to the AM antenna terminal of the receiver and attach the antenna to the rear of the unit. Orient the loop antenna for maximum number of signal-strength indicator segments lit when receiving a desired station. The loop antenna may also be fastened to a wall with the supplied wall-mounting bracket.

If reception conditions are not satisfactory

1. Establish a ground connection.

Provide a single-conductor wire (ordinary vinyl-coated electrical wire) and connect one end of the wire to the AM antenna terminal marked "GND". Connect the other end to an earth ground, for example more than 50 cm length of exposed wire or a metal bar buried in the ground, or a water pipe with complete grounding. To avoid fire hazard, never connect the ground wire to a gas pipe!

2. Use an additional AM wire antenna.

Extend an antenna wire (ordinary vinyl-coated electrical wire) about 4 to 5 meters outdoors and connect one end of the wire to the AM antenna terminal marked "AM". The loop antenna should remain connected also when using an outdoor antenna.

Note:

- If an outdoor AM antenna is used, grounding must be provided for protection against lightning.
- If video equipment or a monitor is connected to the unit, to prevent interference keep the AM loop antenna and all antenna cables as far as possible from the video connection cables.

Use of the Pre Out/Main In Terminals

The Pre Out/Main In terminals on the rear panel of this receiver permit connection of signal-processing equipment such as a sound processor or graphic equalizer. To use the terminals, first remove the jumper plugs joining the Pre Out and Main In jacks. Then connect the input terminals of the equipment to the Pre Out jacks and the output terminals of the equipment to the Main In jacks on the receiver.

Note:

- When these terminals are not used, the supplied jumper plugs must be inserted in the jacks. Otherwise the sound is cut off from the speaker and headphone outputs.
- If jumper plugs are removed or inserted while the unit is switched on, noise bursts may damage the speakers. Be sure to set the Power switch to "Off" before altering any jumper connection.

System Remote Control Connections

By connecting the System Remote outputs on the rear panel of the receiver to the remote control input terminals of Nakamichi cassette decks (except the 480 series) or CD players, the remote control supplied with the receiver can be used to operate all essential functions of the other components. For the connection, use the system remote cables supplied with the receiver.

- For models other than the DR-1/DR-2/DR-3, Cassette Deck 1/1.5/2, and the Model 1000 (DAT), the serial-to-parallel converter RC-4 (sold separately) is required. Please contact your dealer.
- For the Nakamichi models 1000, 1000II, 700, and 700II, the control cable SRC-3 is required in addition to the serial-to-parallel converter RC-4.
- When wishing to control two tape decks (RE-1 only), an additional control cable SRC-2 (sold separately) is required.
- The CD Player Control connector serves for system remote control when a remote sensor unit (such as the RS-7) is used to control the system from another room. The serial-to-parallel converter RC-2 (sold separately) is required for use with OMS-7/7All or OMS-5/5All models.
- When wishing to perform synchro recording with the CD Player 1, CD Player 2, and MB-1/MB-2, connect the tape deck's remote input directly to the synchro recording output of the CD player.

FM/AM Broadcast Reception

Set the Listen Monitor selector to "Tuner".

Automatic Tuning

1. Select automatic tuning with the Tuning Mode button (Auto indicator lights up).
2. Choose the desired frequency band with the AM/FM band selector.
3. Press the Tuning ^ (Up) or v (Down) button. When a station is found, the Lock indicator lights up. If the station broadcasts in FM stereo the Stereo indicator also lights up.
4. If the received station is not the desired one, press the Tuning button again to resume the seek function.
 - During automatic tuning, the muting function suppresses interstation noise.
 - If stereo FM broadcasts sound noisy, press the Tuning Mode button to select manual tuning. Reception is now monaural, but noise should be reduced.
- On very weak stations, the Lock indicator may not light.

Manual Tuning

When wishing to receive very weak broadcast stations which are below the threshold of the automatic tuning function, you can use manual tuning as follows. In this case, reception is monaural, and FM muting is disabled.

1. Select manual tuning with the Tuning Mode button (Auto indicator is off).
2. Choose the desired frequency band with the AM/FM band selector.
3. Press the Tuning ^ (Up) or v (Down) button to adjust the reception frequency. When a station is received, the Lock indicator lights up.

• Tape Deck Operation Table

Model \ Remote control button	<<	>>	< Reverse	>	●	Cue	□	□ □
DR-1/DR-2/DR-3	Rewind	Fast-forward	-	Playback	Recording standby *	Fast-forward	Stop	Pause
CassetteDeck1/1.5/2	〃	〃	-	〃	〃 *	〃	〃	〃
1000(DAT)	〃	〃	-	〃	〃 *	-	〃	〃
CR-7A	〃	〃	-	〃	〃 *	Fast-forward	〃	〃
CR-5A	〃	〃	-	〃	〃 *	〃	〃	〃
CR-4A/CR-3A/CR-2A	〃	〃	-	〃	〃 *	〃	〃	〃
DRAGON	〃	〃	Reverse playback	Forward playback	Recording *	Cueing	〃	〃
RX-505	〃	〃	Tape reversal	Playback	〃 *	〃	〃	〃
RX-303	〃	〃	〃	〃	〃 *	Fast-forward	〃	〃
1000/1000 II	〃	〃	-	〃	〃	〃	〃	〃
1000ZXL	〃	〃	-	〃	〃	Cueing	〃	〃
700/700 II	〃	〃	-	〃	〃	Fast-forward	〃	〃
700ZXL/700ZXE	〃	〃	-	〃	〃	Cueing	〃	〃
ZX-9/ZX-7	〃	〃	-	〃	〃	Recording	Stop	〃
BX-300	〃	〃	-	〃	〃	Fast-forward	〃	〃
LX-5/LX-3	〃	〃	-	〃	Recording	Cueing	〃	〃
682ZX/681ZX/680ZX/680	〃	〃	-	〃	〃 *	〃	〃	〃
670ZX/660ZX	〃	〃	-	〃	〃 *	〃	〃	〃
582Z/581Z	〃	〃	-	〃	〃 *	〃	〃	〃
582/581/580M/580	〃	〃	-	〃	〃	Fast-forward	〃	〃

- : Not available.

〃 : As above.

* : When Rec button is pressed again recording, Record Mute is activated.

Troubleshooting

Please check the following points before requesting service.

Condition

Remedy

No sound or picture.

Check all connections and insert plugs firmly.

Check correct setting of Listen Monitor selector.

Check whether the protection circuitry has been triggered, and check the volume control setting.

Volume is insufficient.

Release audio mute if engaged.

Left/right channels are reversed, no sound from one channel.

Check whether line cables and speaker cables are connected with correct left/right orientation.

Set Balance control to center position.

Bass response is deficient, unstable stereo imaging.

Check speaker cable polarity and connect cables correctly.

Hum noise is heard during phono playback.

Check the record player's output cable and ground cable connection.

Keep the power cord away from the record player's output cable.

Keep the receiver at a distance from the record player.

Hum noise is heard.

Check all connections and insert plugs firmly.

Keep the unit away from TV sets.

Automatic tuning is not possible, or noise level increases notably when stereo broadcasts are received.

Insufficient antenna signal. Change antenna height or orientation, or use a multiple-element FM antenna.

Station is not received when Preset selector button is pushed.

Repeat programming procedure.

Ticking noise during broadcast reception.

Interference from car ignition systems or similar. Move antenna away from major roads and use a coaxial antenna cable.

FM broadcast is supposed to be in stereo, but sound is monaural.

Press the Tuning Mode button to select automatic tuning.

Buzz noise during AM broadcast reception.

Interference from fluorescent lamps, electric motors, thermostats or similar. Try using an outdoor antenna or grounding. (Sometimes it may not be possible to remove the noise entirely.)

Chirping noise during AM broadcast reception.

Interference from adjacent stations or from TV sets or similar. Change orientation of loop antenna or increase distance between TV set and receiver.

Remote control does not operate.

Batteries are exhausted. Replace both batteries.

Check battery polarity.

Point remote control at sensor on receiver.

Do not use other remote controls at the same time.

Remove any obstacles between amplifier and remote control.

General operation of receiver is not normal.

To reset all functions, set the Power switch to ON, insert a pointed nonmetallic object into the small hole on the bottom cover and give it a light push.

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Memory Tuning

- A total of 10 FM/AM stations can be programmed in the memory of the receiver at random, for instant recall.
1. Tune the receiver to the desired broadcast station.
 2. Press the Memory button. The Memory indicator lights up for about 5 seconds.
 3. While the indicator is lit, choose the desired preset station number with the Preset ^ (Up) or v (Down) button.
 4. While the Memory indicator is still lit, press the Memory button again. The indicator goes out and the selected station is stored.
 5. Repeat steps 1 through 4 if you wish to store other stations.
 6. To tune to a stored station, select its number with the Preset ^ or v button:
 - To change the memory content of a preset number:
Simply perform the above steps 1 through 4 for a new broadcast station.
 - If memory tuning is used after manual tuning, the tuning mode will automatically revert to automatic tuning (Auto indicator lights up), and reception is in stereo.
 - If a very weak station was stored and is selected with memory tuning, the sound may be cut off due to the action of the muting circuit. In such a case, just press the Tuning Mode button to select manual tuning. Because this turns muting off, the station will be heard.

Last Station Memory

This receiver's last station memory operates in two ways.

1. When the frequency band is changed with the FM/AM band selector, the last station received in each band is memorized.
2. The station received when the power was turned off (or when the unit was put in the standby condition) is also memorized.

This unit possesses a built-in lithium battery for memory backup. The contents of the preset station memory and the last station memory will be preserved for about five years even if the AC cord of the receiver is unplugged.

For replacement of the lithium battery, contact your dealer. Never attempt to perform the replacement yourself, as this may lead to damage of the unit.

Recording

RE-1/RE-2: Set the Rec Out selector to the program source you wish to record and then set the tape deck to the recording mode. If the connected tape deck has three heads and monitoring capability, the quality of the actual recorded signal can be checked by setting the Listen Monitor selector of the receiver to the Tape position during recording.

RE-1: As the program source selected with the Rec Out selector is present at both the Tape 1 and Tape 2 recording outputs, recording can be carried out on two tape decks simultaneously.

RE-3: Set the Listen Monitor selector to the program source you wish to record and then set the tape deck to the recording mode. To carry out monitoring with a three-head tape deck, press the Tape Monitor button.

Tape Dubbing

RE-1: Set the Rec Out selector to "1 ▶ 2" or "2 ▶ 1" and set the corresponding tape decks to the recording and playback mode.

RE-2/RE-3: Connect the recording tape deck to the set of Tape inputs and outputs; and the playback tape deck output to the Video (Aux) input. Set the Rec Out selector to "Video".

Video Recording (Dubbing)

RE-1: Set the Rec Out selector to the position of the A/V component to be used as a source. Then set the source component to the playback mode and the recording VCR to the recording mode. It is possible to monitor the video signal on a connected TV set or color monitor while dubbing is carried out.

Specifications

RE-1

Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/VIDEO/TAPE) to the speaker output.

- Continuous Average Output Power: 80 watts per channel into 8 ohms, both channels driven, 20 – 20,000 Hz, at no greater than 0.1 % THD • Dynamic Output Power: 110 watts per channel into 8 ohms, 140 watts per channel into 4 ohms • Power Bandwidth: 5 – 40,000 Hz/**5 – 30,000 Hz • Frequency Response: 20 – 20,000 Hz; +0, -0.5 dB, 5 – 75,000 Hz; +0, -3 dB/**20 – 20,000 Hz; +0, -1 dB, **5 – 45,000 Hz; +0, -3 dB • Signal-to-Noise Ratio (A-WTD, input shorted): Better than 100 dB re rated power, Better than 83 dB (IHF-A-202) • Total Harmonic Distortion (8 ohms, rated power, 20 Hz – 20 kHz): Less than 0.1 % • Headphone Rated Output (40 ohms): 187 mW • Output Current Capability: 18 A peak per channel

Preamplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, tone control and loudness characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec Out.

- Sensitivity (for rated output): 2.5 mV (Phono MM), 150 mV (CD/Tape/Video), 1.0 V (Main in) • Sensitivity (for 1-watt output, IHF-A-202): 0.28 mV (Phono MM), 17 mV (CD/Tape/Video), 111 mV (Main in) • Input Impedance: 47 kohms (Phono MM), 20 kohms (CD/Tape/Video), 20 kohms (Main in) • Maximum Input Level (1 kHz): 180 mV (Phono MM) • Pre Output Level/Impedance: 1.0 V/1 kohms • Record Output Level/Impedance: 150 mV/1.5 kohms • Total Harmonic Distortion (1 kHz, to Rec Out, at 1 V): Less than 0.008 % (Phono MM) • RIAA Deviation: 30 – 20,000 Hz ±0.5 dB (Phono MM) • Signal-to-Noise Ratio (to speaker output, IHF-A-202): Better than 78 dB (Phono MM) /**Better than 76 dB (Phono MM) • Tone Controls: 20 Hz, ±10 dB (Bass), 20 kHz, ±10 dB (Treble) • Variable Loudness (re maximum attenuation: -40 dB at 1 kHz): 20 Hz, +20 dB; 20 kHz, +6 dB • Subsonic Filter (Phono only): Cutoff Frequency 20 Hz, -6 dB/octave

Tuner Section

[FM] Note: All RF levels in microvolts given re 300-ohm antenna input. Modulation: Mono 100 %, Stereo Pilot 9 %, Stereo Audio Signal 91 %. (European Model: Mono 60 %, Stereo Pilot 9 %, Stereo Audio Signal 51 %) All measurements made at Rec Out jack.

- Frequency Range: 87.5 – 107.9 MHz in 200 kHz steps/**87.50 – 108.00 MHz in 50 kHz steps • IHF Usable Sensitivity: 11 dBf/1.9 μV (Mono) • 50-dB Quieting Sensitivity: 14.7 dBf/3.0 μV (Mono), 37.5 dBf/41.1 μV (Stereo) / **23.0 dBf/7.7 μV(Mono), **44.0 dBf/86.8 μV (Stereo) • Signal-to-Noise Ratio at 65 dBf: Better than 79 dB (Mono), Better than 72 dB (Stereo) / **Better than 72 dB (Mono), **Better than 67 dB (Stereo) • Muting Threshold: 30 dBf/17.3 μV • Frequency Response: 20 – 15,000 Hz ±1 dB • Total Harmonic Distortion (1 kHz): Less than 0.07 % (Mono), Less than 0.07 % (Stereo) / **Less than 0.20 % (Mono), **Less than 0.25 % (Stereo) • Capture Ratio: 2.0 dB • Alternate Channel Selectivity: 55 dB (±400 kHz) / **70 dB (±300 kHz) • Stereo Separation at 1 kHz: Better than 50 dB / **Better than 40 dB • Spurious Response Rejection: Better than 90 dB • Image Rejection: Better than 75 dB • IF Rejection: Better than 80 dB • AM

• Signal Flow Table (RE-1)

Listen Monitor selector position	Rec Out selector position	Audio signal at speaker output	Audio signal at Tape 1 input (output)	Audio signal at Tape 2/VCR input (output)	Video signal at Video Monitor output	Video signal at Tape 2/VCR input (output)
Phono/Tuner/CD/ Tape 1	Phono	*Phono/Tuner/CD/ Tape 1	Phono	Phono	-	-
	Tuner	"	Tuner	Tuner	-	-
	CD	"	CD	-	-	-
	Video 1	"	Video 1	Video 1	Video 1	Vdeo 1
	Video 2	"	Video 2	Video 2	Video 2	Vdeo 2
	1-2 Copy	"	-	Tape 1	-	-
	2-1 Copy	"	Tape 2/VCR	-	-	-
	Off	"	-	-	-	-
Video 1/Video 2/ Tape 2/VCR	Phono	Video 1/Video 2/ Tape 2/VCR	Phono	Phono	Video 1/Video 2/ Tape 2/VCR	-
	Tuner	"	Tuner	Tuner	"	-
	CD	"	CD	-	"	-
	Video 1	"	Video 1	Video 1	"	Vdeo 1
	Video 2	"	Video 2	Video 2	"	Vdeo 2
	1-2 Copy	"	-	Tape 1	"	-
	2-1 Copy	"	Tape 2/VCR	-	"	-
	Off	"	-	-	"	-

* : Program source selected with Listen Monitor selector

- : No output

10. Memory Button

This button is used to store broadcast stations into the memory for future recall.

11. Tuning Mode selector

Switches between automatic tuning and manual tuning.

12. Preset Buttons

Serve to select FM or AM broadcast stations stored in the preset station memory of the unit.

13. Tuning Buttons

Serve to tune in FM or AM broadcast stations during manual or automatic tuning.

14. Speakers Selector

This selector (RE-1/RE-2) or pair of pushbutton switches (RE-3) controls two sets of speakers (A and B) which can be connected to the receiver. To listen with headphones only, set both speakers A and B to "Off". On the RE-1/RE-2, the position "Remote" allows speaker selection from the remote control.

15. Rec Out Selector (RE-1/RE-2)

This selector determines which signal is routed to the tape outputs. The chosen setting is independent of the position of the Listen Monitor. You could therefore for example listen to the tuner while recording a CD at the same time, or perform tape dubbing while listening to a CD. With three-head tape decks, choosing the position corresponding to the tape deck allows real-time monitoring.

- Off : The tape output jacks carry no signal and are completely disengaged from the internal circuits, for optimum sonic purity. You should choose this position when no tape recording is being carried out.
- Phono/CD/Tuner/Video 1/Video 2 (Video) : The signal of the designated program source is supplied to the tape outputs.
- 1 ▶ 2 ▶ 1 Copy : These positions serve to perform tape dubbing in the indicated direction. (RE-1)
- In the RE-3, the source selected with the Listen Monitor Selector is routed to the tape outputs.

16. Tone Controls

Serve to adjust the tonal balance. The position of these controls has no influence on the tape output signal during recording or dubbing.

17. RE-1/RE-2 : Tone Switch

Setting this switch to "On" activates the tone control circuits.

RE-3 : Loudness Switch

18. Variable Loudness Control (RE-1/RE-2)

This control permits compensation of subjective bass and treble losses which occur at low listening levels.

19. Balance Control

The setting of this control affects only the speaker and headphone outputs. It has no influence on the tape output signal during recording or dubbing.

20. Remote Control Sensor

The infrared signals from the supplied remote control unit are picked up by this sensor. The indicator lights up when a signal is being received.

Rear Panel

1. Remote Sensor Input Connector

Allows remote control from a separate room, using an (optional) RS-5 or RS-7 Remote Sensor.

2. System Remote Output Connectors

Other Nakamichi components such as a tape deck or CD player can be connected to these terminals, for integrated remote control of the entire system.

3. GND Terminal

4. Video 1/2 Input Connectors (RE-1)

5. Tape 2/VCR Video Output Connectors (RE-1)

6. Tape 2/VCR Video Input Connectors (RE-1)

7. Video Monitor Output Connector (RE-1)

8. Speaker Impedance Selector (North American Model)

Set this switch to the required position, depending on the impedance of the loudspeakers in use. For details, please see the explanation in the section "Connections".

9. AC Outlets (Switched)

These convenience outlets are controlled by the Power switch on the unit's front panel. Connect only audio components to these outlets and make sure that the total power consumption does not exceed 200 watts for the RE-1/RE-2 or 150 watts for the RE-3.

- Never connect any household appliances with high current requirements to these outlets.
- TV sets, monitors, etc. often have a high turn-on current, even if they are rated for lower power consumption. Never connect such equipment to these outlets.

10. Antenna Input Connectors

11. Phono Input Connectors

Serve for connection of moving-magnet (MM) cartridges only.

12. CD Input Connectors

13. RE-1 : Video 1 (Aux) / Video 2 (Aux) Audio Input Connectors

RE-2 : Video (Aux) Audio Input Connectors

The audio signals of A/V equipment or of auxiliary audio equipment can be connected to these jacks.

14. Tape 2 / VCR Audio Output Connectors (RE-1)

For connection to the audio inputs of a second tape deck or a VCR.

15. Tape 2 / VCR Audio Input Connectors (RE-1)

16. Tape 1 (RE-1) , Tape (RE-2) Audio Output Connectors

For connection to the audio inputs of a tape deck.

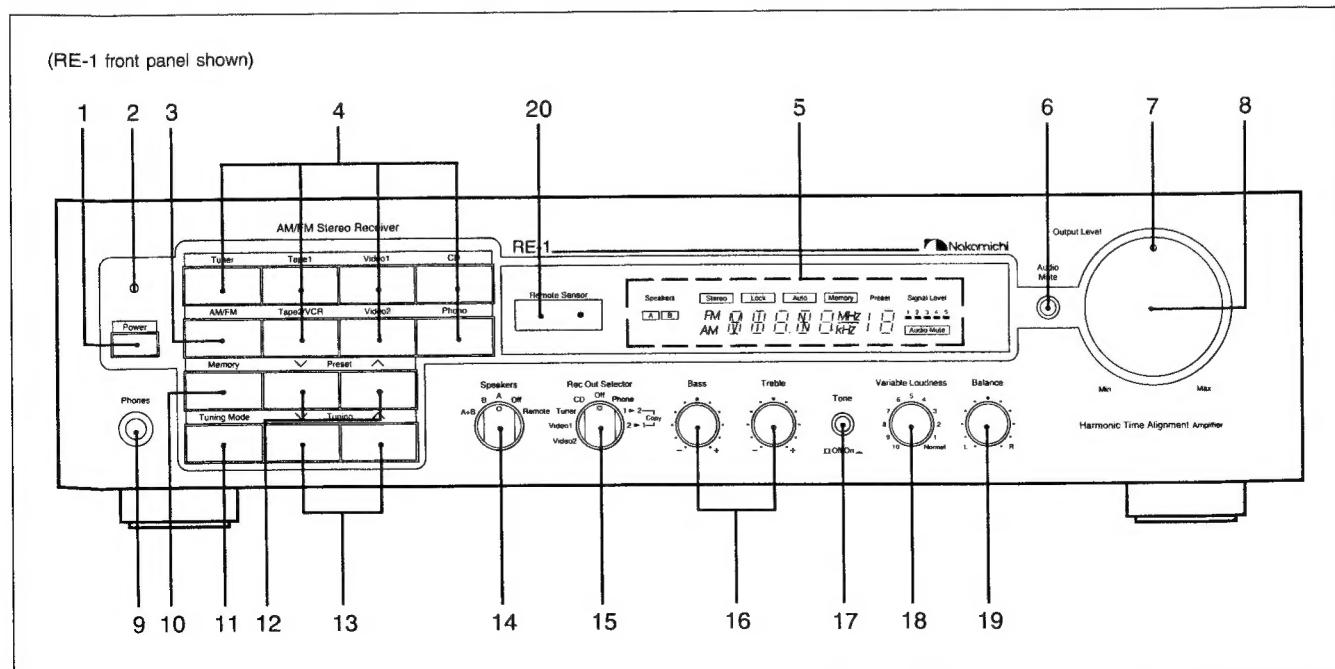
17. Tape 1 (RE-1) , Tape (RE-2) Audio Input Connectors

For connection to the audio outputs of a tape deck.

18. Pre Out Connectors

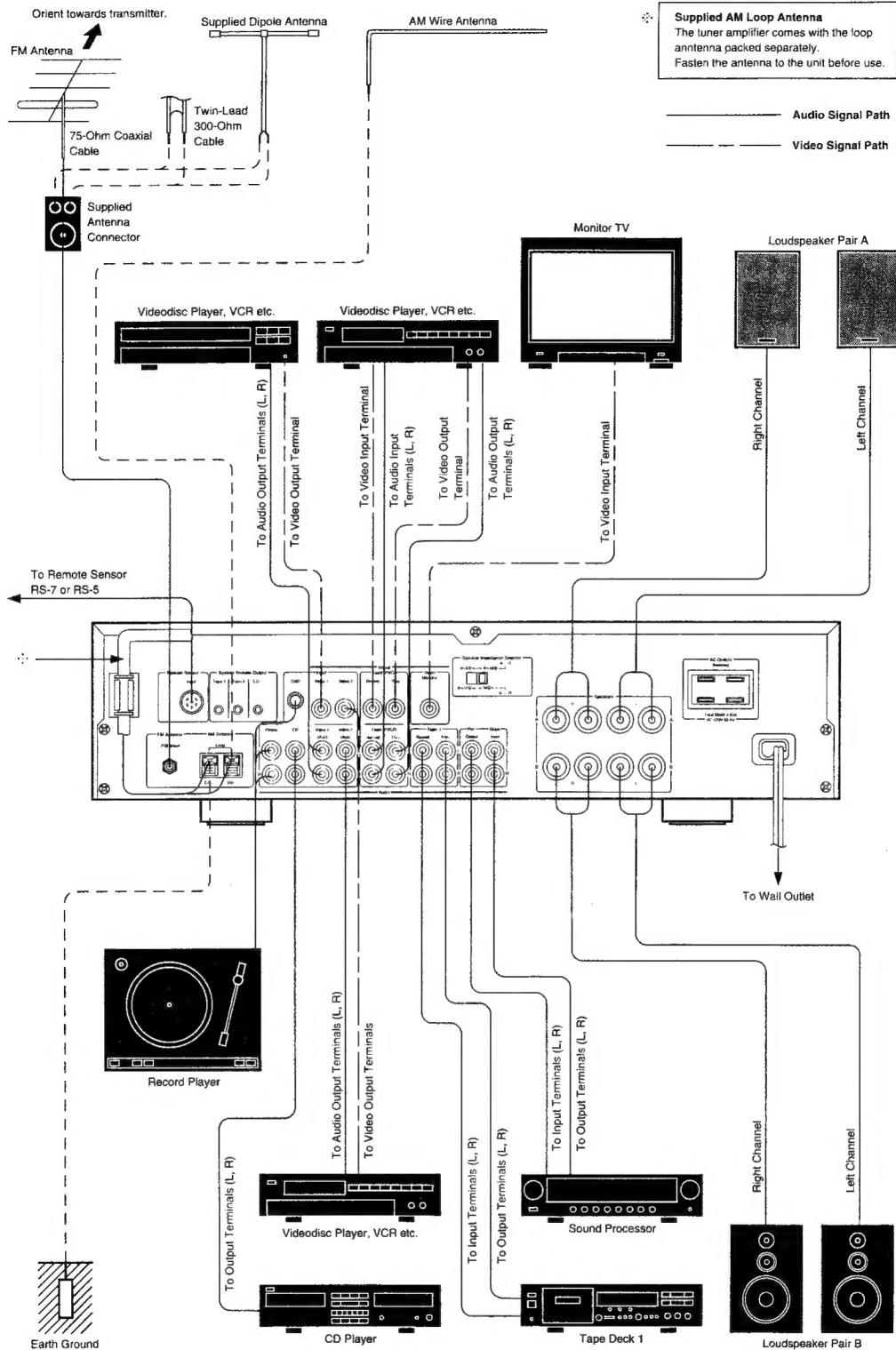
19. Main In Connectors

These jacks can be used to insert a device such as a sound processor or graphic equalizer in the signal path. The preamplifier section and power amplifier section in this receiver can be used separately. If no external equipment is connected, the jumper plugs inserted in the jacks must be left in place. (RE-3 has pre-out connectors only).



Connections

The Chart shows the RE-1.



CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, AND INSERT FULLY.

- Set the power switches of all components to OFF. Then make connections as shown below, taking care not to mix up left and right channels.
- For easy identification, the input and output connectors of this unit are color coded. Video signal input and output jacks (RE-1) are yellow. Audio input and output jacks are white for the left channel and red for the right channel.
- Except for the jumper plugs in the Pre Out/Main In jacks, never insert any shorting plugs or the like into unused input or output jacks, as this can interrupt the sound or cause damage to the unit.

- For video connections (RE-1), always use dedicated video cables. Otherwise impedance mismatching can lead to image distortion.

Speaker Connections

Connect the loudspeakers, taking care not to mix up left and right channels, and to observe correct (+) and (-) polarity. If the polarity of one speaker is reversed, the speakers will be out of phase, causing a loss in bass response and unstable, irregular stereo imaging. Double-check to make sure that both speakers have the same polarity.

- You can use speakers with a rated impedance of 4 to 16 ohms. However, if two pairs of speakers are connected simultaneously, each speaker should have an impedance of 8 ohms or more. Otherwise, the power amplifier section may be damaged.
- It is recommended that you use high-quality, heavy-gauge speaker cable with

20. Jumper Plugs

When the Pre Out/Main In connectors are not used, the supplied jumper plugs must be inserted in the jacks. Otherwise the sound is cut off from the speaker and headphone outputs.

- If jumper plugs are removed or inserted while the unit is switched on, noise bursts may damage the speakers. Be sure to set the Power switch to "Off" before altering any jumper connection.

21. Speaker Output Terminals

22. Power Cord

Remote Control Unit

1. Tape Deck Selector (RE-1)
2. Tape Deck Control Buttons
3. CD Player Control Buttons
4. Tuner Control Buttons
5. Listen Monitor Selector
6. Speaker Selector (RE-1/RE-2)
7. Power Button
8. Mute Button (RE-1/RE-2)
9. Volume Button

Batteries

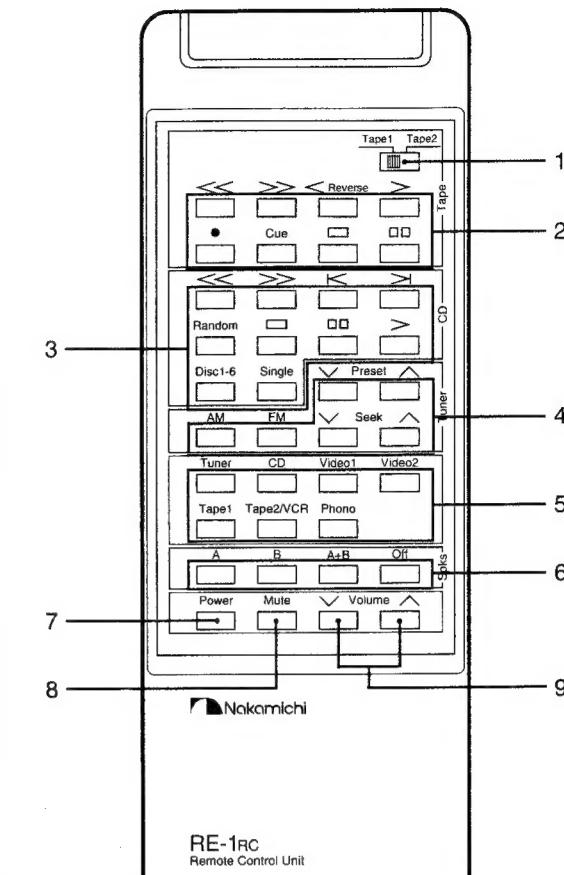
Remove the cover of the battery compartment and insert the supplied two R06 batteries (size AA) into the compartment. Take care to insert the batteries with correct polarity.

When the batteries are nearing exhaustion, the effective range of the remote control decreases or the remote control may fail to operate. In this case, replace both batteries with fresh ones.

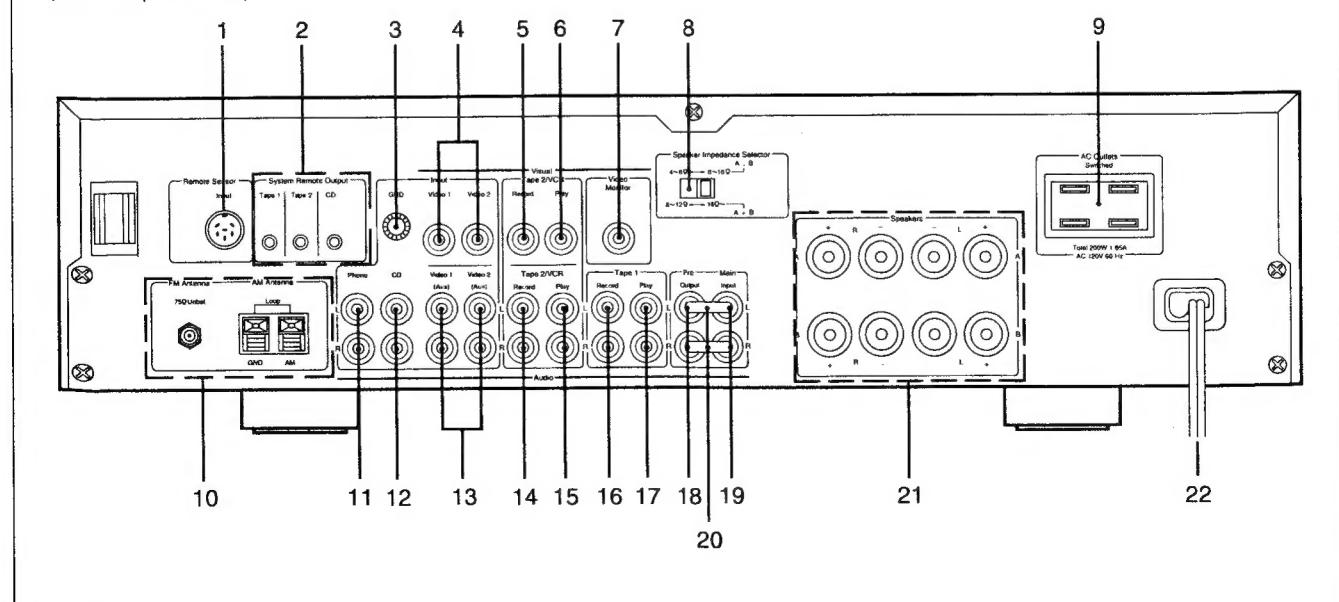
Note:

- Do not use a mixture of old and new batteries, and make sure that both batteries are of the same type.
- Only batteries specially designed and clearly marked as such are rechargeable. Carefully read and observe the instructions printed on the batteries.
- To prevent damage caused by possible battery leakage, remove the batteries from the remote control unit if it is not to be used for an extended period of time.
- Never dismantle batteries or dispose of them in fire, as they may explode. Dispose of batteries only in an appropriate way as indicated by your community.

(RE-1 remote control shown)



(RE-1 rear panel shown)



Suppression: Better than 60 dB

[AM] Note: Modulation — 400 Hz, 30 %

- Frequency Range: 520 – 1,710 kHz in 10 kHz steps / **522 – 1,611 kHz in 9 kHz steps • Sensitivity: 53 dB μ /m • Signal-to-Noise Ratio at 90 dB μ /m: Better than 52 dB • Total Harmonic Distortion at 90 dB μ /m: Less than 0.5 % • Selectivity: Better than 20 dB (\pm 10 kHz / **9 kHz)

General

- Power Source: 120, 230 or 240 V AC, 50/60 Hz (According to country of sale)
- Power Consumption: 390 W max. • Convenience Outlets: Switched: 2 (General Model), Switched: 1 (European and Oceanian Model) • Dimensions*: 430 (W) x 100 (H) x 370 (D) mm, 16-15/16 (W) x 3-15/16 (H) x 14-9/16 (D) inches • Approximate Weight: 11.5 kg, 25 lbs. 6 oz.

Remote Control Unit

- Principle: Infrared pulse system • Power Supply: 3 V DC (1.5 V x 2) • Dimensions*: 64 (W) x 18 (H) x 176 (D) mm, 2-1/2 (W) x 11/16 (H) x 6-15/16 (D) inches • Approximate Weight: 130 g, 5 oz. (including batteries)

RE-2

Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/VIDEO/TAPE) to the speaker output.

- Continuous Average Output Power: 55 watts per channel into 8 ohms, both channels driven, 20 – 20,000 Hz, at no greater than 0.1 % THD • Dynamic Output Power: 75 watts per channel into 8 ohms, 95 watts per channel into 4 ohms
- Power Bandwidth: 5 – 40,000 Hz / **5 – 30,000 Hz • Frequency Response: 20 – 20,000 Hz; +0, -0.5 dB, 5 – 75,000 Hz; +0, -3 dB / **20 – 20,000 Hz; +0, -1 dB, **5 – 45,000 Hz; +0, -3 dB • Signal-to-Noise Ratio (A-WTD, input shorted): Better than 100 dB re rated power, Better than 83 dB (IHF-A-202) • Total Harmonic Distortion (8 ohms, rated power, 20 Hz – 20 kHz): Less than 0.1 % • Headphone Rated Output (40 ohms): 129 mW • Output Current Capability: 14 A peak per channel

Preamplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, tone control and loudness characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec Out.

- Sensitivity (for rated output): 2.5 mV (Phono MM), 150 mV (CD/Tape/Video), 1.0 V (Main in) • Sensitivity (for-1-watt output, IHF-A-202): 0.34mV (Phono MM), 20 mV (CD/Tape/Video), 135 mV (Main in) • Input Impedance: 47 kohms (Phono MM), 20 kohms (CD/Tape/Video), 20 kohms (Main in) • Maximum Input Level (1 kHz): 180 mV (Phono MM) • Pre Output Level/Impedance: 1.0 V/1 kohms • Record Output Level/Impedance: 150 mV/1.5 kohms • Total Harmonic Distortion (1 kHz, to Rec Out, at 1 V): Less than 0.008 % (Phono MM) • RIAA Deviation: 30 – 20,000 Hz \pm 0.5 dB (Phono MM) • Signal-to-Noise Ratio (to speaker output, IHF-A-202): Better than 78 dB (Phono MM) / **Better than 76 dB (Phono MM) • Tone Controls: 20 Hz, \pm 10 dB (Bass), 20 kHz, \pm 10 dB (Treble) • Variable Loudness (re maximum attenuation: -40 dB at 1 kHz): 20 Hz, +20 dB; 20 kHz, +6 dB • Subsonic Filter (Phono only): Cutoff Frequency 20 Hz, -6 dB/octave

Tuner Section

[FM] Note: All RF levels in microvolts given re 300-ohm antenna input. Modulation: Mono 100 %, Stereo Pilot 9 %, Stereo Audio Signal 91 %. (European Model: Mono 60 %, Stereo Pilot 9 %, Stereo Audio Signal 51 %) All measurements made at Rec Out jack.

- Frequency Range: 87.5 – 107.9 MHz in 200 kHz steps / **87.50 – 108.00 MHz in 50 kHz steps • IHF Usable Sensitivity: 12 dBf/2.2 μ V (Mono) • 50-dB Quieting Sensitivity: 15.7 dBf/3.3 μ V (Mono), 38.5 dBf/46.1 μ V (Stereo) / **23.0 dBf/7.7 μ V (Mono), **44.0 dBf/86.8 μ V (Stereo) • Signal-to-Noise Ratio at 65 dBf: Better than 79 dB (Mono), Better than 72 dB (Stereo) / **Better than 72 dB (Mono), **Better than 67 dB (Stereo) • Muting Threshold: 30 dBf/17.3 μ V • Frequency Response: 20 – 15,000 Hz \pm 1 dB • Total Harmonic Distortion (1 kHz): Less than 0.10 % (Mono), Less than 0.10 % (Stereo) / **Less than 0.20 % (Mono), **Less than 0.25 % (Stereo) • Capture Ratio: 2.0 dB • Alternate Channel Selectivity: 55 dB (\pm 400 kHz) / **70 dB (\pm 300 kHz) • Stereo Separation at 1 kHz: Better than 50 dB / **Better than 40 dB • Spurious Response Rejection: Better than 90 dB • Image Rejection: Better than 75 dB • IF Rejection: Better than 80 dB • AM Suppression: Better than 60 dB

[AM] Note: Modulation — 400 Hz, 30 %

- Frequency Range: 520 – 1,710 kHz in 10 kHz steps / **522 – 1,611 kHz in 9 kHz steps • Sensitivity: 53 dB μ /m • Signal-to-Noise Ratio at 90 dB μ /m: Better than 52 dB • Total Harmonic Distortion at 90 dB μ /m • Selectivity: Better than 20 dB (\pm 10 kHz / **9 kHz)

General

- Power Source: 120, 230 or 240 V AC, 50/60 Hz (According to country of sale)
- Power Consumption: 295 W max. • Convenience Outlets: Switched: 2 (General Model), Switched: 1 (European and Oceanian Model) • Dimensions*: 430 (W) x 100 (H) x 370 (D) mm, 16-15/16 (W) x 3-15/16 (H) x 14-9/16 (D) inches • Approximate Weight: 9.0 kg, 19 lbs. 13 oz.

Remote Control Unit

- Principle: Infrared pulse system • Power Supply: 3 V DC (1.5 V x 2) • Dimensions*: 64 (W) x 18 (H) x 176 (D) mm, 2-1/2 (W) x 11/16 (H) x 6-15/16 (D) inches • Approximate Weight: 130 g, 5 oz. (including batteries)

RE-3

Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/VIDEO/TAPE) to the speaker output.

- Continuous Average Output Power: 37 watts per channel into 8 ohms, both channels driven, 20 – 20,000 Hz, at no greater than 0.1 % THD • Dynamic Output Power: 55 watts per channel into 8 ohms, 70 watts per channel into 4 ohms
- Power Bandwidth: 10 – 40,000 Hz • Frequency Response: 20 – 20,000 Hz; \pm 1 dB, 10 – 50,000 Hz; +1, -3 dB • Signal-to-Noise Ratio (A-WTD, input shorted): Better than 98 dB re rated power, Better than 83 dB (IHF-A-202) • Total Harmonic Distortion (8 ohms, rated power, 20 Hz – 20 kHz): Less than 0.1 % • Headphone Rated Output (40 ohms): 86 mW • Output Current Capability: 10 A peak per channel

Preamplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, tone control and loudness characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec Out.

- Sensitivity (for rated output): 2.5 mV (Phono MM), 150 mV (CD/Tape/Video), 1.0 V (Main in) • Sensitivity (for-1-watt output, IHF-A-202): 0.41 mV (Phono MM), 25 mV (CD/Tape/Video) • Input Impedance: 47 kohms (Phono MM), 20 kohms (CD/Tape/Video) • Maximum Input Level (1 kHz): 150 mV (Phono MM) • Pre Output Level/Impedance: 1.0 V/1 kohms • Record Output Level/Impedance: 150 mV/1.5 kohms • Total Harmonic Distortion (1 kHz, to Rec Out, at 1 V): Less than 0.01 % (Phono MM) • RIAA Deviation: 30 – 20,000 Hz \pm 1 dB (Phono MM) • Signal-to-Noise Ratio (to speaker output, IHF-A-202): Better than 78 dB (Phono MM) • Tone Controls: 20 Hz, \pm 10 dB (Bass), 20 kHz, \pm 10 dB (Treble) • Loudness (volume: -30 dB): 20 Hz, +10 dB; 20 kHz, +6 dB • Subsonic Filter (Phono only): Cutoff Frequency 20 Hz, -6 dB/octave

Tuner Section

[FM] Note: All RF levels in microvolts given re 300-ohm antenna input. Modulation: Mono 100 %, Stereo Pilot 9 %, Stereo Audio Signal 91 %. (European Model: Mono 60 %, Stereo Pilot 9 %, Stereo Audio Signal 51 %) All measurements made at Rec Out jack.

- Frequency Range: 87.5 – 107.9 MHz in 200 kHz steps / **87.50 – 108.00 MHz in 50 kHz steps • IHF Usable Sensitivity: 12 dBf/2.2 μ V (Mono) • 50-dB Quieting Sensitivity: 15.7 dBf/3.3 μ V (Mono), 38.5 dBf/46.1 μ V (Stereo) / **24.0 dBf/8.7 μ V (Mono), **44.0 dBf/86.8 μ V (Stereo) • Signal-to-Noise Ratio at 65 dBf: Better than 78 dB (Mono), Better than 69 dB (Stereo) / **Better than 71 dB (Mono), **Better than 66 dB (Stereo) • Muting Threshold: 30 dBf/17.3 μ V • Frequency Response: 30 – 15,000 Hz \pm 1.5 dB • Total Harmonic Distortion (1 kHz): Less than 0.15 % (Mono), Less than 0.20 % (Stereo) / **Less than 0.25 % (Mono), **Less than 0.25 % (Stereo) • Capture Ratio: 2.0 dB • Alternate Channel Selectivity: 55 dB (\pm 400 kHz) / **70 dB (\pm 300 kHz) • Stereo Separation at 1 kHz: Better than 45 dB / **Better than 38 dB • Spurious Response Rejection: Better than 80 dB / **Better than 90 dB • Image Rejection: Better than 47 dB / **Better than 75 dB • IF Rejection: Better than 80 dB • AM Suppression: Better than 60 dB

[AM] Note: Modulation — 400 Hz, 30 %

- Frequency Range: 520 – 1,710 kHz in 10 kHz steps / **522 – 1,611 kHz in 9 kHz steps • Sensitivity: 53 dB μ /m • Signal-to-Noise Ratio at 90 dB μ /m: Better than 52 dB • Total Harmonic Distortion at 90 dB μ /m: Less than 0.5 % • Selectivity: Better than 20 dB (\pm 10 kHz / **9 kHz)

General

- Power Source: 120, 230 or 240 V AC, 50/60 Hz (According to country of sale)
- Power Consumption: 220 W max. • Convenience Outlets: Switched 2 (General Model), Switched: 1 (European and Oceanian Model) • Dimensions*: 430 (W) x 100 (H) x 275 (D) mm, 16-15/16 (W) x 3-15/16 (H) x 10-13/16 (D) inches • Approximate Weight: 6.0 kg, 13 lbs. 4 oz.

Remote Control Unit

- Principle: Infrared pulse system • Power Supply: 3 V DC (1.5 V x 2) • Dimensions*: 63 (W) x 18 (H) x 148 (D) mm, 2-1/2 (W) x 11/16 (H) x 5-13/16 (D) inches • Approximate Weight: 120 g, 4 oz. (including batteries)

* Dimensions do not include protruding parts. Height is the panel height without feet.

* Specifications and design are subject to change for further improvement without notice.

* Harmonic Time Alignment is a trademark of Nakamichi Corporation

** European Model